

Neutrinos in/from supernovae

Monday, 12 August 2019 09:00 (30 minutes)

The behavior of neutrinos in core-collapse supernovae is very different from their usual role as ephemeral larcenists. Neutrinos are the principle mechanism by which energy and lepton number are transported within the explosion, while core-collapse supernovae produce neutrinos in such prodigious quantities that the neutrino signal from a supernova in The Galaxy would allow us to directly observe the conditions at the center of the explosion and thus test our theories of how massive stars end their lives. In this talk I will present the current status of our understanding of neutrinos in supernovae emphasizing what has been recently learned, where the gaps in our understanding still exist, and what information we can hope to glean from a neutrino burst signal. In addition, I will discuss how new properties of neutrinos, such as interactions beyond the Standard Model or additional flavors of neutrinos, can be probed and tested in regimes of temperature and density not accessible here on Earth.

Keywords

Neutrinos

Primary author: KNELLER, Jim (NC State University)

Presenter: KNELLER, Jim (NC State University)

Session Classification: Neutrinos